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Expert Group Meeting for the Asian and
Pacific Region, in Preparation for the
Consultation on the Food-Processing Industry
with Emphasis on Fruit and Vegetable Processing

Beijing, People's Republic of China
22-24 November 1988

# REPORT*

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* This document has not been edited.

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## PREFACE

### The System of Consultations

The Second General Conference of the United Nations Industrial Development Organization (UNIDO), held at Lima (Peru) in March 1975, recommended that UNIDO should include in its activities a system of continuing consultations between developed and developing countries with the aim of increasing the participation of the latter in world industrial production by means of enhanced international co-operation. Subsequently, the United Nations General Assembly, at its seventh special session in September 1975, supported this recommendation.

In May 1980 the Industrial Development Board decided to establish the System of Consultations on a permanent basis, and in May 1982 approved the rules thereof (The System of Consultations, PI/84), stipulating its principles, objectives and characteristics - in particular:

> "The System of Consultations shall be an instrument through which the United Nations Industrial Development Organization (UNIDO) is to serve as a forum for developed and developing countries in their contacts and consultations directed towards the industrialization of developing countries.
>
> The System of Consultations shall seek action-oriented measures towards increasing the share of developing countries in world industrial production and creating new industrial facilities in developing countries contributing to the establishment of a New International Economic Order. To that end, the problems associated with the industrialization of developing countries shall be considered on a continuing basis from a policy, economic, financial, social and technical point of view.
>
> The System of Consultations shall relate to co-operation between developed and developing countries and among developing countries themselves.
>
> The System of Consultations would also permit negotiations among interested parties at their request, at the same time as or after consultations.
>
> Participants of each member country should include representatives of governments, industry, labour, consumer groups and others, as deemed appropriate by each Government.
>
> Each Consultation Meeting shall formulate a report, which shall include conclusions and recommendations agreed upon by consensus and also other significant views expressed during the discussions."

Consultation on the Food-Processing Industry with Emphasis on Fruit and Vegetable Processing

The Industrial Development Board, at its second session in October 1986, decided to include the Consultation on the Food-Processing Industry with Emphasis on Fruit and Vegetable Processing in the programme of consultation meetings for the biennium 1988-1989.

In accordance with the decision and the programme of work adopted, the Consultation on Fruit and Vegetable Processing will be convened in Tbilisi, USSR, from 18-22 September 1989.

Preparatory activities have begun at the regional level, including the preparation of documents on the fruit and vegetable processing industry in the Asian and Pacific Region, Africa and Latin America, as well as the organization of regional expert group meetings as well as a Global Preparatory Expert Group Meeting.

The Expert Group Meeting for the Asian and Pacific Region was organized by UNIDO in close collaboration with the Beijing Vegetable Research Center, the Ministry of Light Industry and the Ministry of Foreign Relations and Trade of the People's Republic of China. The Meeting was held at Beijing, People's Republic of China, from 22-24 November 1988.

The objectives of the meeting were:

a) To discuss the present situation of the fruit and vegetable processing industry with special emphasis on raw materials processing, storage, marketing, packaging, quality aspects and the potential for expansion of production;

b) To identify common and specific constraints which hamper the development of this industry in developing countries in the region such as raw material supply, technology, marketing and packaging, management and financing;

c) To examine and propose ways and means for international co-operation and action needed to overcome identified constraints;

d) To select specific issues for further elaboration to be discussed at the Consultation.

## CONCLUSIONS AND RECOMMENDATIONS

1. The Expert Group Meeting for the Asian and Pacific Region, held at Beijing from 22-24 November 1988, in preparation of the Consultation on Food Processing Industry with Emphasis on Fruit and Vegetable Processing to be convened in Tbilisi 1989, fully recognized the importance of the economic and technical problems facing the sector in the region and world-wide as a whole.

2. As a result of the discussion, the following conclusions and recommendations were agreed upon by the participants:

- It was recognized that the countries of the region could exploit their comparative advantages as the region supplies a large variety of fruits and vegetables, the processing of which creates employment, income distribution and more nutritious food available to the population and also earns foreign exchange by establishing integrated agro industrial complexes and exporting products at competitive quality and price;

- The participants recognized the necessity of establishing close links between farmers producing raw materials for processing and the industrial enterprises through establishing an appropriate fruit pricing system and income distribution;

- The supply of raw materials with the proper quality for processing was felt to be one of the crucial points for the economically sound operation of the industry;

- Market promotion and evaluation was felt to be a basis for the expansion of the production for local consumption and international trade, taking into account their different requirements;

- The extension of the co-operation within the region was felt to be an important factor for the development of the sector especially in terms of market operations, technological development and transfer of technology;

- It was generally agreed that the improvement and design of packaging, selection of packaging materials and methods, and development of packaging machinery contributed significantly to the economy of operations;

- It was agreed that financial policies and regulations should be carefully evaluated taking into account the interests of farmers and processors, interest rates, high risks of investment, investment loans and taxation with a view to creating a more favourable economic climate and better conditions;

- It was recommended that special quality control requirements for a range of suitable varieties should be established for the fruits and vegetables intended for industrial processing, beside those existing for direct consumption;

- With the aim of improving market activities it was recommended to concentrate on promotional methods and strategies with emphasis on tropical varieties;

- It was recommended that close links should be established among existing research centres, technological and packaging institutes of the region to utilize the acquired knowledge and information in the development of processing fruits and vegetables with the aim to develop technical and economic co-operation among developing countries in the region;

- Human resource development and training should be concentrated on management operations, on personnel dealing with technological processes and development programmes. In this area it was recommended that operational manuals should be worked out and utilized at all levels covering specific elements of production;

- Proper selection of packaging methods and analysis and evaluation of technologies and materials were necessary to increase productivity specially on tin-plated can production;

- With the aim to diversify the industry and to foster the wider utilization of raw materials and by-products, information should be collected and discussed in the field of downstream processes and products;

- By establishing close co-operation on a South-South basis, emphasis should be given to co-operation among countries with similar climatic and agricultural conditions;

- It was recommended that UNIDO, FAO and other international bodies should make joint efforts for the preparation of the Consultation taking into account the agriculture-industry linkages;

- UNIDO's Investment Promotion Service was asked to give special attention to promote project development related to the sector, taking into consideration the possibilities of North-South co-operation;

3. It was agreed that in preparation of the First Consultation, UNIDO's activities should concentrate on the following major areas:

- Assurance of proper quality of the processed fruits and vegetables as the basic condition for the further development of the sector, including all major contributing elements;

- Supply of the adequate raw materials and proper varieties to enable the processing industry to operate in the most competitive way;

- Problems related to packaging materials, methods and technologies with the aim of increased efficiency and economy;

- Market evaluation, analysis and promotion as a condition for the expansion of the industry and the utilization of its potentials.

4. It was suggested that UNIDO and FAO should co-operate closely during the preparations for the Consultation using the knowledge and experience already accumulated by those two Organizations. Co-operation should also be maintained with other international and regional organizations.

5. The participants expressed their appreciation to the host country, as well as to the Beijing Vegetable Research Center, Ministry of Light Industry and Ministry of Foreign Relations and Trade for the excellent organization of the Expert Group Meeting.

## I. ORGANIZATION OF THE MEETING

6. The Expert Group Meeting for the Asian and Pacific Region in preparation for the Consultation on the Food-Processing Industry with Emphasis on Fruit and Vegetable Processing was held at Beijing, People's Republic of China, from 22-24 November 1988. The meeting was attended by 16 participants from 8 countries, and a representative of FAO (See Annex I for list of participants).

### Opening of the meeting

7. At the opening session, the meeting was addressed by Ms. Chen Hang, Director, Beijing Vegetable Research Center, who welcomed the participants and highlighted the importance of the fruit and vegetable processing industry to the region and developing countries in general.

8. She pointed out that the present international forum, convened with the assistance of UNIDO, would provide a unique opportunity for the exchange of views and contribute to the development of the fruit and vegetable processing industry in developing countries. She also expressed her confidence that this meeting was indicative of the high degree of interest that the international community has been showing in resolving the problems within the sector. She emphasized the need to support and strengthen the productivity and efficiency in the industry in order to overcome the existing barriers to its development and to contribute to the economic growth and prosperity in the region. Finally, she expressed her best wishes to the participants for a successful and productive meeting.

9. The meeting was then addressed by a representative from UNIDO who, on behalf of the Director of the System of Consultations Division, welcomed the participants and expressed his gratitude to the Beijing Vegetable Research Center, Ministry of Light Industry, Ministry of Foreign Relations and Trade for their kindness in hosting the meeting, as well as for their hospitality. He gave an account of the work that UNIDO was carrying out within the framework of the System of Consultations to encourage contacts between the countries in order to promote the industrial and economic development and the process of industrialization.

10. He also referred to the importance of the fruit and vegetable processing industry for many developing countries in general, and the Asian and Pacific region in particular. He drew the attention of the participants to the fact that the increased processing of fruits and vegetables in the developing countries of the region would further strengthen the linkage between industry and agriculture. Modern technology in the production of high quality industrial raw materials, storage, packaging, transportation, and industrial

processing and utilization of the by-products, standardization, introduction of quality control, inspection and regulation, needed to be intensively employed to derive maximum benefit to the economy. Referring to the importance of the fruit and vegetable processing industry in terms of its contribution to the gross domestic product and employment in the region, he expressed his confidence that co-ordinated efforts would inevitably help the interested parties to find a successful solution to existing problems and he hoped the meeting would determine those areas which were crucial for the future development of the fruit and vegetable processing industry in the Asian and Pacific region.

11. The meeting was also addressed by the UNIDO Senior Industrial Development Field Adviser, who expressed his belief in the necessity of the evaluation of the problems of the industry's development in Asia and the Pacific region, and stressed the complexity of the situation in the sector. In his view a comprehensive economic analysis of the fruit and vegetable processing industry of the developing countries of the region would be of a great value and contribute to the successful application of modern technology and know-how available on the international market.

## II. SUMMARY OF DISCUSSIONS

12. Ms. Ru Jing Zong, Head, Postharvest Physiology Laboratory, Beijing Vegetable Research Center, was elected as Chairperson of the meeting. She stressed the importance of the Expert Group Meeting for the Asian and the Pacific Region for the preparation of the Consultation on the Food-Processing Industry with Emphasis on Fruit and Vegetable Processing. Referring to the complexity of the problems facing the successful development of the fruit and vegetable processing industry of the region, she invited all the participants to try to make the outcome of the forthcoming discussions fruitful and productive.

13. In introducing the agenda she indicated that in order to fulfil the objectives of the meeting, attention should first be given to reviewing and characterizing the problems and perspectives of the fruit and vegetable processing industry in Asia and the Pacific before determining the priority areas and issues for consideration by the Consultation meeting. The agenda was unanimously adopted and is attached as Annex II.

14. A representative of UNIDO, in his presentation, gave an overall view of the fruit and vegetable processing industry in the world. He emphasized the need to concentrate on the obstacles to development of the fruit and vegetable processing industry and ways and means of their elimination. He also drew the attention of the participants to the perspectives of international co-operation and the role of UNIDO and some other specialized institutions, especially FAO, in the field of fruit and vegetable processing. He noted that joint efforts and co-ordinated actions as well as the proper exchange of information, technology and know-how would be of great value for the efficient resource management and speeding up the development process in the sector.

15. In accordance with the agenda, the Chairperson requested the participants to discuss the documents prepared for the meeting and to follow up with the characterization of the problems affecting the region's fruit and vegetable processing industry. Appreciation was expressed to all participants who submitted reports relating to their own countries. The experts then gave an account of the situation of the fruit and vegetable processing industry in their countries with regard to production, consumption, supply of raw materials, processing, exports, market trends, etc.

16. The participants recognized that in view of trends in the world market and the expansion of domestic demand, the outlook for the fruit and vegetable processing industry was favourable for developing countries. The agro-climatic conditions were excellent in many of them in the region, thus facilitating the production of juice from tropical and subtropical fruits, as well as dried, frozen, and canned fruits and vegetables. The products that could be processed in developing countries present a large range of items, and there appears to be room to expand production. In this connection all efforts should be concentrated on the measures to overcome the existing constraints to enhancing the industrial output of the fruit and vegetable processing industry and upgrade its export potentials and capabilities.

17. Following the characterization of the problems affecting the development of the sector, the participants concluded that the obstacles impeding the development of this industry were low levels of agricultural productivity and supply of raw materials, inadequate processing technology, lack of quality control and research and development. Special efforts should be undertaken to develop methods and types of packaging that could permit the sale of processed foods at prices the producer countries could afford, both for domestic consumption and for development of a stable export market. Modern efficient energy saving and low cost facilities are also needed to improve the cost structure of the final products and productivity in the industry.

18. Continuing the deliberations on the constraints faced by the fruit and vegetable processing industry in developing countries, the participants noted that although there was an overall abundance in the supply of fruits in season, lack of good quality fruits for processing created a shortage in the supply of raw materials and irregularities in their flow to processing plants. Despite the presumed low cost inputs of fruits in the retail costs of processed or canned products, owing to the low yield per hectare, the "raw materials component" was often too high by international standards and in some cases the price paid by processing plants for fresh products input was considered unremunerative by farmers and other producers. The problem was related to the general conditions of production of agricultural products and the sharing benefits between the producer of primary commodity and the industrial processing unit.

19. The issue of the well-balanced selection of the proper varieties and raw materials for further processing was brought to the meeting's attention. Some of the participants expressed the view that only exotic tropical fruits were useful for a rapid market penetration. It was agreed however that a huge potential has not been fully utilized in the field of traditional export products such as mango, pineapple, oranges, etc. In this connection the participants requested a precise evaluation of the market situation and the productivity trends in this sector.

20. It was also agreed that the inavailability and high costs of appropriate packaging was one of the major obstacles to further expansion of the fruit and vegetable industry, due to the fact that retail-size packaging costs, metal cans, label and cardboard boxes make up between 40 and 50 per cent of ex-factory costs when determining the competitiveness of a country's fruit processing industry. Therefore, the improvements in packaging technology, selection of proper packaging materials and methods, development of new packaging machinery was considered by the participants to be important to the sector.

21. In the course of the discussion many participants pointed out that close links did not always exist between farmers producing raw materials for processing and the industrial enterprises thus causing an inadequate fruit pricing system and low income distribution. Generally speaking, the fruit and vegetable processing industry lacks the proper vertical integration system which could guarantee an up-stream and a down-stream flow of products on a justified and sound economic basis. The participants agreed that efforts should be concentrated on creation of agro-industrial complexes and elimination of artificial barriers within the industry.

22. Deep concern was expressed over the problem of inadequate levels of manpower training and skills in the sector. Despite the relatively wide availability of a modern processing technology on the international market a lot of small and medium scale enterprises in developing countries were experiencing difficulties not only in purchasing of equipment but with its adaptation and efficient usage under local conditions. Strategies for the sector's development should therefore include intensive programmes of personnel training with the aim to upgrade the technological level of the fruit and vegetable processing industry.

23. It was agreed that a special government economic policy was needed to stimulate successful operation of the sector. Economic incentives, tax stimulus packages, loan guarantees and a more favourable credit approach were needed in many countries by private farmers and small- and medium-scale processing enterprises to reach the necessary level of competitiveness and provide the industry with financial and investment inputs. The participants highlighted the importance of such measures to establish new industrial units and companies as well as for international market penetration.

24. In discussing the issue of economic policies, the participants concluded that national development programmes, setting up management training institutions, technical training and the proper distribution of functions between governments, public and private sectors within the industry would greatly improve the efficiency and avoid heavy financial inputs. Economic analyses of market price trends, supply and demand, proper export stimulus measures and abolishment of all duties and sales taxes would also contribute to the increased turn-over in the industry.

25. The participants expressed the opinion that market promotion and evaluation were of a critical importance for the expansion of production for local consumption and international trade. It was recognized that the lack of

adequate market information, different requirements in packaging for domestic and export consumption, low level managerial skills of producers in terms of market penetration were negatively affecting the performance of the fruit and vegetable processing industry. In this connection, the meeting came to the conclusion that a comprehensive and thorough economic analysis of the market forces as well as the structural aspects of the international trade in processed fruits and vegetables should be made and would lead to a better understanding of the present situation and perspectives.

26. Continuing the deliberations on the international aspects in the sector, the participants noted that a better exchange of, and access to information was of vital importance to the development of the industry. Many countries, especially those in the Asian and Pacific region, would benefit directly from the creation of regional or world data banks on technology and market information, commodity flows, etc. Information should also be collected and disseminated in the field of downstream processes and products with the aim to diversifying the industry under-utilization of raw materials and by-products thus reaching new market opportunities. In this connection, more intensive co-operation on a South-South and North-South basis would inevitably contribute to the development of the fruit and vegetable processing industry in the region.

27. In the observation of the international aspects of the fruit and vegetable industry development the participants expressed the belief that there was a need to strive for new forms of economic assistance and mutually beneficial co-operation among the countries. Joint ventures, barter and buy-back agreements could channel additional financial resources into the sector and generate hard currency exchange. It was noted that up until now the transfer of technology and know-how did not correspond to the minimum requirements of the sector in terms of upgrading its international performance.

28. At the end of the discussions the participants expressed their confidence that the meeting had presented an excellent opportunity to discuss the situation of the fruit and vegetable processing industry in Asia and the Pacific and to make substantive and concrete recommendations. The need for further co-operation among countries producing fruits and vegetables as well as international organizations was noted. The participants stressed the importance of co-ordinating activities of UNIDO and FAO and expressed appreciation in the joint efforts of these agencies in the development of the fruit and vegetable processing industry.

## III. CLOSURE OF THE MEETING

29. At the closing session, the Chairperson thanked the experts for their excellent professional contributions, their efforts and enthusiastic and fruitful participation. She expressed her strong belief that the outcome and recommendations of the meeting would be extremely useful for the preparation of the Consultation on the Food-Processing Industry with Emphasis on Fruit and Vegetable Processing and contribute to fulfilling its objectives.

Annex I

LIST OF PARTICIPANTS

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Annex II

AGENDA

1. Opening of the meeting

2. Election of Chairman

3. Adoption of the agenda

4. Information on the forthcoming Consultation on the Food-Processing Industry with Emphasis on Fruit and Vegetable Processing to be held at Tbilisi, USSR, September 1989

5. Discussion of the fruit and vegetable processing industries' situation in the region based on the background paper and the country position papers prepared by the participants

6. Other matters

7. Conclusions and recommendations

Annex III

LIST OF DOCUMENTS

| | |
|---|---|
| Background paper prepared by H.G.R. Reddy | IPCT.77 (SPEC) |
| Fruit and Vegetable Processing in Indonesia by Lily Waliya Chalidin | |
| Horticulture Industry in India by V.H. Potty | |
| Fruits and Vegetables Processing Industry in Malaysia by Adinan Husin | |
| Thailand Fruit and Vegetable Processing Industry by Chatchai Boonyarat | |
| Fruit and Vegetable Processing Industry in the Philippines by Francisco C. Chavez | |
| Fruit and Vegetable Processing in China by Zong Ru Jing | |
| The Situation and Prospects of Development of Fruit and Vegetables Processing, Keeping and Transporting by Lina A. Bantysh, USSR | |
| "Le Marche de Rungis", submitted by Clause Cosson, France | |